



### Session I: How the Omicron variant was discovered

**Content:** NGSS, inquiry-based lessons on Covid 19, variants of concern. Students will act as epidemiologists monitoring the Delta variant. Patient samples will be processed for the presence of the virus. This will be followed up with genetic sequencing surveillance to identify the type of variant the patient is infected with.

**Key words:** DNA, cDNA, protein structure, National Center for Biotechnology Information (NCBI), evolution, mutations, sequencing, variants, gel electrophoresis, PCR, spike protein, receptor binding domain (RBD)

### Session II: Testing for the presence of Covid19



**Content:** NGSS, inquiry-based lessons on the current tools used to detect the presence of Sars-Cov-2, namely polymerase chain reaction (PCR), rapid antigen tests (RAT) and the serological test for the presence of antibodies (ab). The workshop will present the science behind how these diagnostic tools work and the significance of the results.

**Key words:** mRNA, DNA, cDNA, reverse transcriptase, PCR, real-time PCR, enzyme linked immunosorbent assay (ELISA), antigen, antibody, serology

**Target audience for both sessions:** science teachers (6<sup>th</sup>-12<sup>th</sup>)

**Hosted by:** Santa Clara County Office of Ed.

Presenter: Mark Okuda (\*) - both sessions

Dates of Webinar:

session I on 1/31 (Monday)

session II on 2/7 (Monday)

Times: 4 pm to 5:30 pm (PST)

**(\*) Mark Okuda**, BA, Biology/Chemistry (University of Pacific, Stockton Ca.), MA Natural Sciences (San Jose State University, San Jose, Ca.), Silver Creek High School (San Jose, Ca.) science instructor (retired) Evergreen Valley College- adjunct professor of Biology (retired). Active board member of Teach Biotech (Santa Clara, Ca.). Guest Lecturer Florida International University: Global Forensics and Justice Center (Miami, Florida), San Jose State University science education supervisor. Co-author of a Forensic Science textbook (<https://www.amazon.com/Hands-Introduction-Forensic-Science-Cracking/dp/1482234904>)

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